

## Water column

The life history section of the plan (Section 5.1) reviewed the water quality tolerances and preferences of the different life stages of bay scallops. Bay scallops spawn in high salinity estuarine waters, and spawning is triggered by decreased water temperatures primarily in the fall. Bay scallops have a narrow range of environmental tolerances (Table 8.1). Temperature extremes, reduced salinities, and elevated turbidity stress bay scallops and can result in elevated mortality, with larvae and juveniles being most sensitive (Peterson et al. 1996).

Table 8.1. Water quality requirements of bay scallop egg and larvae (Pattilo et al 1997).

Parameter	Optimum	Max/min threshold
Temperature (C)	20-30	<32
Salinity (ppt)	18-30	>14
Dissolved Oxygen		>70ml/kg/hr
		> 7 ppm*
Turbidity (ppm)		< 500

\*Peterson et al. 1996

Early larval stages are planktonic and depend on tidal currents to be transported to a suitable settlement site. Peterson et al. (1996) noted that scallops spawning in areas located near the hydrographic center of a tidal waterbody are less likely to result in reseeding of other areas due to lack of adequate current. Conversely, scallops located where tidal influence is greater, are more likely to enhance recruitment of the system.

All life stages require food to be transported to them through the water column. The most important factor controlling growth is food supply (Irlandi et al. 1999). Food is delivered from horizontal current flow as well as resuspended microalgae from the bottom. Recruitment studies have shown greater growth with increased current velocity since higher current velocities increase the flux of food (Eckman 1987; Ambrose et al. 1992; Irlandi et al. 1999). However, if currents are too great, growth can be inhibited (Eckman et al. 1989). Thus, currents and consequent food availability affect the location of successful larval settlement on other structure. Currents also aid in oxygenating the water to adequate levels (Peterson et al. 1996).

The condition of the water column and activities that threaten it are discussed further in Section 8.2, Water Quality.

## Soft bottom

Soft bottom habitat is unconsolidated, unvegetated sediment that occurs in freshwater, estuarine, and marine systems. Sediment composition varies with geomorphology and location within the system and may be a factor in scallop